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NTC ORLANDO
5090.3a

BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT FOR STUDY AREA 55 NTC ORLANDO FL

1/1/1997

ABB ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT

STUDY AREA 55

NAVAL TRAINING CENTER ORLANDO, FLORIDA

UNIT IDENTIFICATION CODE: N65928
CONTRACT NO.: N62467-89-D-0317/107

JANUARY 1999

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29418

BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE SCREENING REPORT

STUDY AREA 55

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Unit Identification Code: N65928

Contract No.: N62467-89-D-0317/107

Prepared by:

Harding Lawson Associates
2590 Executive Center Circle, East
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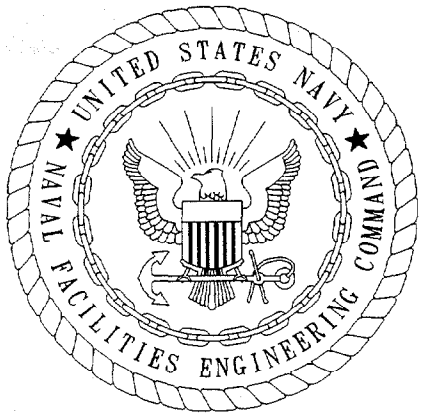
Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Barbara Nwokike, Code 1873, Engineer-in-Charge

January 1999



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, Harding Lawson Associates, hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/107 are complete and accurate and comply with all requirements of this contract.

DATE: January 25, 1999

NAME AND TITLE OF CERTIFYING OFFICIAL: John Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Richard Allen
Project Technical Lead

(DFAR 252.227-7036)

NTC-ESSR.S55
SAS.01.99

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
CLP	Contract Laboratory Program
DQO	data quality objective
EBS	Environmental Baseline Survey
FDEP	Florida Department of Environmental Protection
HLA	Harding Lawson Associates
IA	immunoassay
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
NTC	Naval Training Center
PCB	polychlorinated biphenyl
RBC	risk-based concentration
SA	Study Area
SCTL	soil cleanup target level
SVOC	semivolatile organic compound
TAL	target analyte list
TCL	target compound list
USEPA	U.S. Environmental Protection Agency

1.0 STUDY AREA 55, BUILDING 1104

This report contains information gathered during site screening activities conducted at Study Area (SA) 55. Harding Lawson Associates (HLA) presented recommended field activities to the Orlando Partnering Team during the June meeting in Atlanta, and HLA submitted a sampling plan for Building 1104 to the Navy on June 22, 1998 (Appendix A). Site screening field activities were completed on August 11 and 12, 1998.

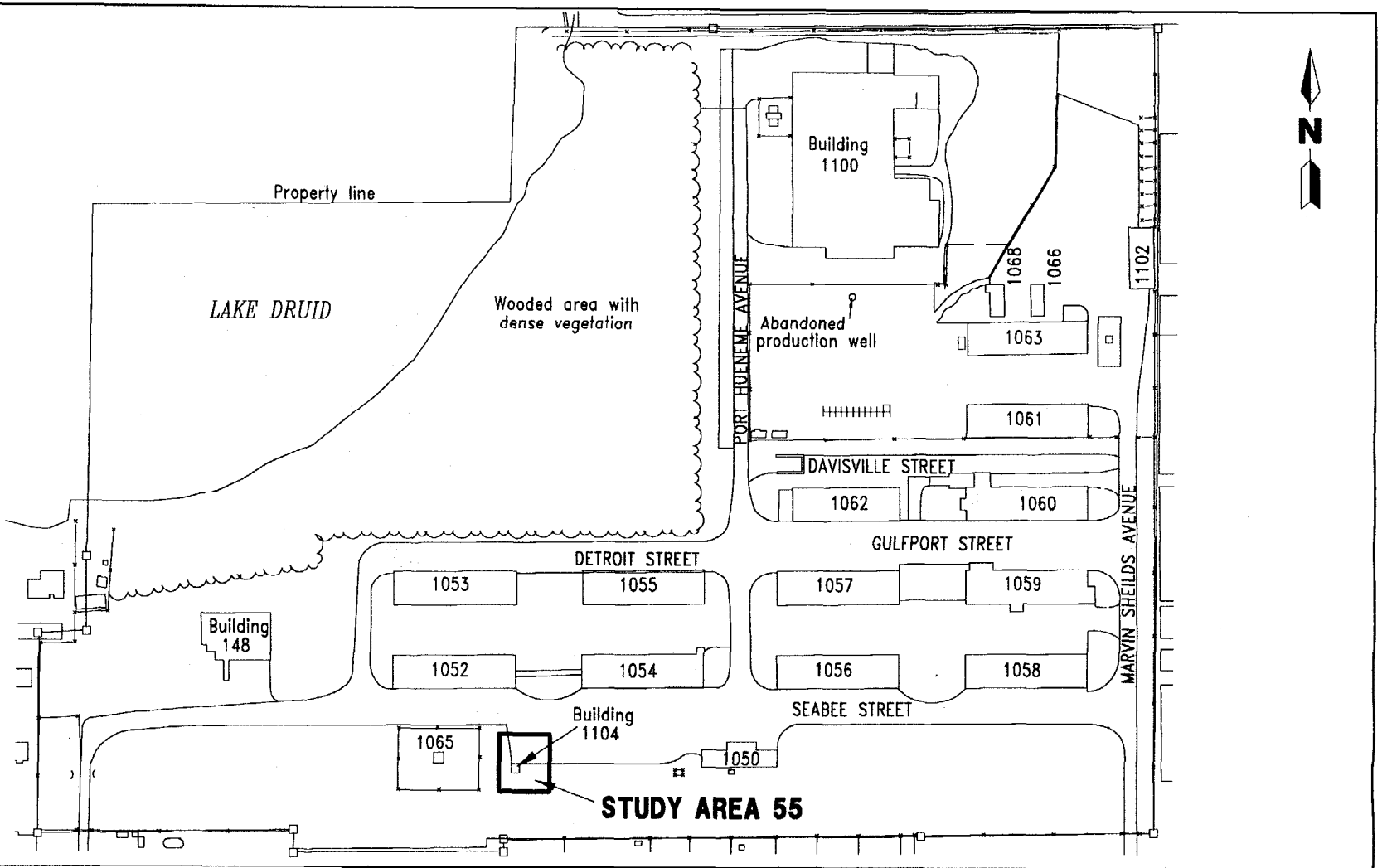
1.1 BACKGROUND AND CONDITIONS. SA 55 is part of Area C, Naval Training Center (NTC), Orlando, Florida (Figure 1). Building 1104 was constructed in 1982 for storage of polychlorinated biphenyl (PCB)-laden oil and other waste and hazardous materials. This 12-foot by 12-foot building is constructed of painted cinderblock on a sealed concrete slab with a 6-inch-high continuous curb around the perimeter of the floor and is placarded for PCB storage. The north side of the building abuts the asphalt-paved parking area south of Sea Bee Street (Figure 2). Access is through an overhead door on the north side of the building. The areas adjacent to the south, west, and east sides of the building are maintained lawn. A review of aerial photographs indicates that the site was unimproved lawn before the building was constructed.

The NTC, Orlando Public Works Department interviewed base workers who were familiar with the operation of Building 1104. According to the personnel interviewed, drums stored outside Building 1104 were placed on pallets in the asphalt-paved area north of the building. Several drum pallets were observed during the Environmental Baseline Survey (EBS) (ABB Environmental Services, Inc. [ABB-ES], 1994). Storage practices at Building 1104, specifically storage of drums containing non-PCB-laden oil outside the building, were cited in a base outfall survey, but no releases were reported at that time. No documented spills are associated with storage operations at this facility.

The initial site screening investigation at Area C did not include Building 1104 because the building still contained hazardous materials at the time of the screening investigations in 1994 and 1995. The facility had a label on the door stating that PCBs were stored within. Several drums with unidentified contents were located inside the facility at the time of the EBS. No documented spills were associated with storage operations at this facility and no further action was recommended.

At the time of the initial site walkover prior to the present investigation, granular spill absorbent material was observed in the grass area at several points around the perimeter of the building. A source at NTC, Orlando Public Works indicated that several bags of absorbent material had been damaged by rodents, and that some of the loose material may have been spilled in the grassy area.

1.2 SITE SCREENING INVESTIGATION SUMMARY. The site screening investigation was conducted to evaluate environmental media that may have been exposed to hazardous material released at the site. Past site practices and current site conditions were used to determine sampling locations.



0 125 250
SCALE: 1 INCH = 250 FEET

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FIGURE 1
LOCATION OF STUDY AREA 55

BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE
SCREENING REPORT
STUDY AREA 55
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

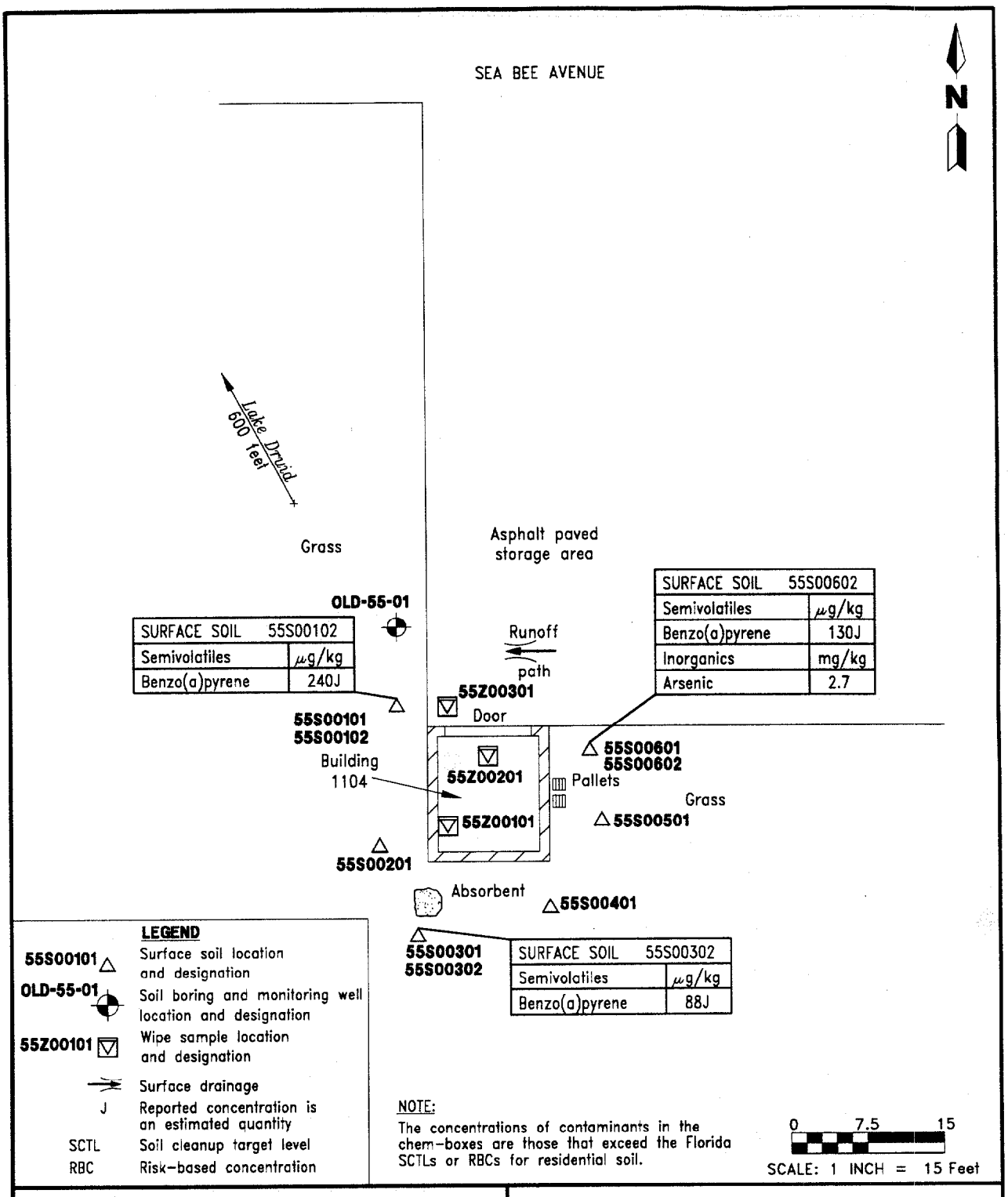

FIGURE 2
STUDY AREA 55
WIPE SAMPLE, SURFACE SOIL, SOIL BORING, AND MONITORING WELL LOCATIONS
BUILDING 1104, AREA C

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BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE SCREENING REPORT
STUDY AREA 55
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

1.2.1 FIELD PROGRAM. Areas of environmental interest include the lawn area around Building 1104, which could potentially have received spills or runoff from storage areas near the building, from the interior of the building where various materials were stored, and from the paved area immediately north of the building, which was also used for storage. The potential handling and storage of PCBs or PCB-contaminated materials at the site were also considered when sampling locations and analyses were selected.

1.2.1.1 Surface Soil Sampling for Immunoassay (IA) Analysis Six surface soil samples were collected from the grass area adjacent to Building 1104, two each on the west, south, and east sides of the building. One of the samples from the west side of the building was collected from the area receiving runoff from the loading door area on the north side of Building 1104. Each surface soil sample was collected from 0 to 1 foot below land surface (bls).

The soil samples were field screened for total PCBs with IA field kits using U.S. Environmental Protection Agency (USEPA) Method 4020. IA analysis was conducted in accordance with USEPA Level II data quality objectives (DQOs).

1.2.1.2 Surface Soil Sampling Three surface soil samples were collected at locations around the perimeter of Building 1104. One soil sample, 55S00102, was collected at the northwest corner of the building, in the storm water runoff path from the paved area. Another sample, 55S00302, was collected near the southwest corner of the building, where an accumulation of absorbent material was noted in the grass. The third sample, 55S00602, was collected near the northeast corner of the building, near an area where pallets were stored.

Surface soil samples for each location were submitted to an approved laboratory for full suite Contract Laboratory Program (CLP) target analyte list (TAL) and target compound list (TCL) laboratory analysis plus pesticides and PCBs, in accordance with USEPA Level IV DQOs.

1.2.1.3 Groundwater Monitoring Well Installation and Sampling One microwell, OLD-55-01, was installed during the site screening investigation (Figure 2). The selected location was anticipated to be downgradient of Building 1104, and was placed in an area that receives runoff from the asphalt-paved area next to the building. The soil boring for the microwell installation was advanced approximately 13 feet into the surficial aquifer. The screened interval for the microwell bracketed the water table, which was encountered at 8 feet bls during the investigation.

A groundwater sample was collected from the microwell using the low-flow sampling method (ABB-ES, 1997). The groundwater sample was submitted to an approved laboratory for full suite CLP TAL and TCL laboratory analysis plus pesticides and PCBs, in accordance with USEPA Level IV DQOs. The monitoring well installation diagram and field sample data are included in Appendix B.

1.2.1.4 Wipe Samples Three surface wipe samples were collected at the site. Two were collected from the concrete floor surface inside Building 1104. One location was in the southwest corner where rust stains from drum storage were observed. The other sample collected from inside Building 1104 was located at the northern end, adjacent to the containment curb across the doorway. The third sample was collected from the asphalt pavement in front of the loading door on

the north side of the building in the path of surface runoff from the paved storage area.

The samples from each location were submitted to an approved laboratory to be analyzed for TCL PCBs in accordance with USEPA level IV DQOs.

1.3 SA 55 RESULTS. The analytical results of the surface soil samples collected during the site screening investigation were evaluated by comparing the concentration of the various compounds detected to screening criteria, including basewide soil background screening levels, Florida Department of Environmental Protection's (FDEP's) Soil Cleanup Target Levels (SCTLs), and USEPA Region III Risk-Based Concentrations (RBCs). The nature and location of the exceedances of screening criteria are presented on Figure 2 and are discussed below.

Groundwater analytical data are compared to background screening values, FDEP Groundwater Cleanup Target Levels, Federal maximum contaminant levels, and USEPA Region III RBCs for tap water.

Analytical results from the media sampled at SA 55 are presented as Summary of Detections Tables in Appendix C. A complete set of analytical results is presented in Appendix D. Exceedances of background or regulatory guidance concentrations (shaded on the positive hits tables) are displayed in chemical boxes near their respective explorations on Figure 2.

1.3.1 IA Analytical Results Of the seven IA analyses conducted, only one of the samples tested, 55S00101D, had a positive response for PCBs (Appendix C-1). This test was a duplicate analysis of the extraction from 55S00101, which was below detection limits. Therefore, this result is interpreted as a false positive.

1.3.2 Surface Soil Analytical Results Analysis of the surface soil collected at SA 55 detected semivolatile organic compounds (SVOCs), metals, and pesticides (Appendix C-2). Arsenic was detected in the three surface soil samples (55S00102, 55S00302, and 55S00602) at concentrations of 0.96B, 0.97B, and 2.7 milligrams per kilogram (mg/kg), respectively. The SCTL for residential soil is 0.8 mg/kg for arsenic, and the established background screening concentration for NTC, Orlando is 1.0 mg/kg. The SCTL for industrial soil is 3.7 mg/kg for arsenic. Therefore, no arsenic concentrations exceed State or Federal industrial screening concentrations.

Benzo(a)pyrene was detected in the three surface soil samples (55S00102, 55S00302, and 55S00602) at concentrations of 240J, 88J, and 130J micrograms per kilogram (μg/kg), respectively. The SCTL for residential soil is 100 μg/kg for benzo(a)-pyrene, and the SCTL for industrial soil is 500 μg/kg. Therefore, no benzo(a)-pyrene concentrations exceed State or Federal industrial screening concentrations.

1.3.3 Groundwater Analytical Results Analysis of the groundwater collected at SA 55 detected several metals (Appendix C-3). None of the analytes detected were at concentrations exceeding their respective screening criteria or Florida groundwater guidance concentrations.

1.3.4 Wipe Sample Analytical Results PCB concentrations were below detection limits in the wipe samples collected at SA 55 (Appendix D-3).

1.4 SA 55, CONCLUSIONS AND RECOMMENDATIONS. Based on available information and site screening data, it is concluded that past site practices have had minimal impact on environmental media at SA 55. Subsurface soil and groundwater did not have any detections of compounds above screening criteria and only two compounds were detected in surface soil at concentrations above residential screening criteria.

Arsenic was detected in the three surface soil samples (55S00102, 55S00302, and 55S00602) at concentrations ranging from 0.96B to 2.7 mg/kg. Benzo(a)pyrene was detected in the same three surface soil samples at concentrations ranging from 88 to 240 µg/kg. In some cases, these concentrations exceed the residential SCTL and residential RBC, but they do not exceed either industrial standard. This area of the base has been developed and urbanized since the base was established. SVOCs, including benzo(a)pyrene, are not uncommon in urban areas where petroleum products have been used.

Because the intended reuse of this parcel is industrial, and the arsenic and benzo(a)pyrene detections in surface soil were below industrial screening criteria, HLA recommends that SA 55 be made eligible for transfer, with the provision that the area be restricted to nonresidential use. HLA further recommends that the site be reclassified from 7/Gray to 4/Dark Green.

The undersigned members of the Orlando Partnering Team concur with the findings and recommendations of the preceding investigation.

STUDY AREA 55

U.S. Environmental Protection Agency, Region IV	1-21-99 Date
Florida Department of Environmental Protection	1/21/99 Date
U.S. Department of the Navy	1-21-99 Date

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1994. *Base Realignment and Closure Environmental Baseline Survey Report, Naval Training Center, Orlando, Florida*. Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina.

ABB-ES. 1997. *Project Operations Plan for Site Investigations and Remedial Investigations, Volumes I and II, Naval Training Center, Orlando, Florida*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina.

APPENDIX A

SAMPLING PLAN FOR BUILDING 1104
AREA C
NAVAL TRAINING CENTER, ORLANDO

Harding Lawson Associates

Document No.: 02530a.101

June 22, 1998

Commanding Officer
SOUTHNAVFACENGCOM
ATTN: Ms. Barbara Nwokike, Code 1873
PO Box 190010
2155 Eagle Drive
N. Charleston, SC 29419-9010

Dear Barbara:

Subject: **Sampling Plan for Building 1104**
Area C

HLA has completed a work plan for a limited site screening program at Building 1104, Area C to determine whether or not there are any contaminants present at concentrations of concern. Based on comments at the OPT meeting in Atlanta last week, minor revisions were suggested, and they have been incorporated into this document.

HISTORY OF BUILDING 1104. The EBS describes Building 1104 as a small painted cinderblock storage facility constructed in 1982 for storage of Polychlorinated Biphenyl (PCB) laden oil and other waste and hazardous materials. This 12-foot by 12-foot building is constructed of painted cinderblock on a concrete slab with a gabled roof. A review of aerial photographs indicates that the site was unimproved lawn at Area C until the building was constructed. Several drum pallets were observed during the Environmental Baseline Survey (EBS). The building was cited by the base outfall survey for storing drums of non-PCB laden oil outside the building, but no leaks were reported. The building, however, may have stored PCB-laden oil. No documented spills are associated with storage operations at this facility.

The initial site screening investigation at Area C did not include Building 1104 since at the time of the screening investigations in 1994 and 1995, the building still contained hazardous materials. The facility had a label on the door stating PCBs were stored within. Located inside the facility were several drums with unidentified contents. No further action was recommended during the EBS.

SITE SCREENING INVESTIGATION. HLA recommends that the analytical suite include compounds other than PCBs because the building, according to the EBS, contained "hazardous materials" in addition to PCB-laden oil. Accordingly, HLA recommends the following site screening activities:

- Use information collected from former workers (provided by Public Works) to determine where drums may have been stored outside Building 1104.
- Collect two PCB wipe samples of the floor inside the building, concentrating on any stained areas.
- Collect one PCB wipe sample from the asphalt surface outside (north of) the building, but only if there is a stained area near the building entrance.

Document No.: 02530a.101

- Collect two surface soil samples (0 to 1 foot bls) from west, south, and east sides of Building 1104 and analyze in the field with PCB immunoassay (IA) test kits. Samples will be biased toward former drum storage areas (determined from information provided by Public Works), most likely potential spill areas or preferential surface water flow.
- If there are IA detections of PCBs, collect up to three samples for full suite laboratory analysis, in accordance with the new soil sampling guidance for volatiles analysis (SW 846-5035).
- If there are no IA detections, collect one or two surface soil samples for full suite laboratory analysis, with location(s) biased toward former drum storage areas, most likely potential spill areas, or preferential surface water flow.
- Install one microwell downgradient from Building 1104 (west or northwest of building toward Lake Druid) and submit groundwater sample for full suite laboratory analysis.

Please call me if you have any questions.

Very Truly Yours,

HARDING LAWSON ASSOCIATES

Rick Allen

Richard P. Allen
Principal Scientist

cc: W. Hansel (SouthDiv)
J. Mitchell (FDEP)
N. Rodriguez (EPA)
Lt. G. Whipple (SouthDiv)
S. McCoy (Tetra Tech)
B. Cohose (Bechtel)
File

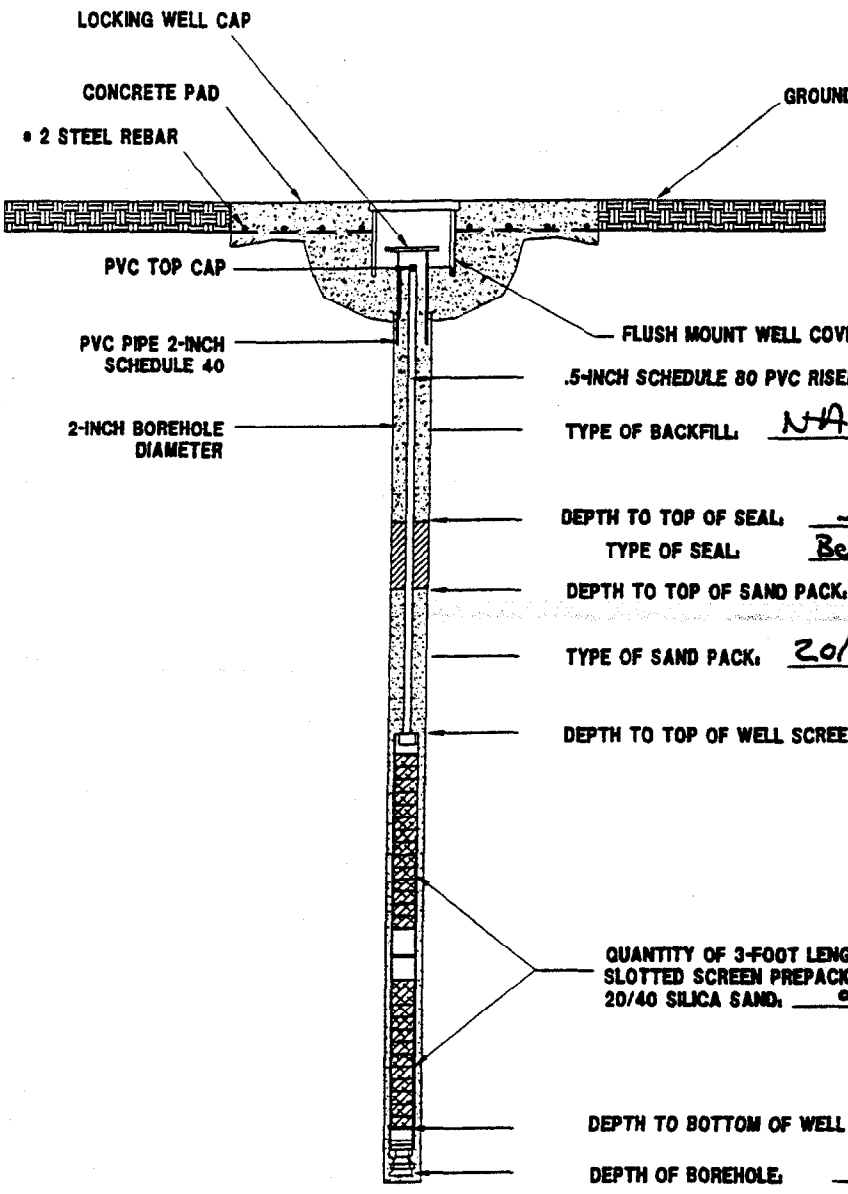
APPENDIX B

MONITORING WELL CONSTRUCTION DIAGRAM, GROUNDWATER SAMPLING FIELD DATA SHEET, AND SURFACE SOIL SAMPLE FIELD DATA

MICROWELL CONSTRUCTION DIAGRAM

PROJECT: NTC ORLANDO
PROJECT NO: 02530.05
WELL ID: OLD-55-01
FIELD PERSONNEL: WDO? PVC

SITE NAME: SA55
DATE INSTALLED: 8-11/98
INSTALLATION METHOD: HA/ 2" casing



NOT TO SCALE

GROUNDWATER SAMPLE FIELD DATA

Project: NTC ORLANDO
Project Number: 02530.09
Sample Location ID: OLD-55-01
Time: Start: 1310 End: 1510

Point of Interest: SA55
Date: 8-12/98
Signature of Sampler: [signature]

Water Level/Well Data

Well Depth 13.90 Ft. — X Measured / ___ Historical
X Top of Well / ___ Top of Protective Casing ___ ___
Well Riser Stick-up (from ground) FM Ft.
Protective Casing/Well Difference ___ Ft.
Protective Casing ___ Ft.

Depth to Water 8.60 Ft.
Well Material: X PVC / X SS / ___
Well Locked?: X Yes / ___ No
Well Dia.: ___ 2 inch / ___ 4 inch / ___ 6 inch / X 1/2"
Water Level Equip. Used: X Elect. Cond. Probe / ___ Float Activated / ___ Press. Transducer / ___ ___

Height of Water Column 5.30 Ft. X ___ .16 Gal/R. (2 in.) / ___ .65 Gal/R. (4 in.) / ___ 1.5 Gal/R. (6 in.) / .01 Gal/R. (1/2 in.) = 0.053 Gal/Vol
3.2 Total Gal Purged

Well Integrity: Yes / No
Prot. Casing Secure: ✓ / ___
Concrete Collar Intact: X / ___
Other ___ X / ___

Equipment Documentation

Purging/Sampling Equipment Used :

(✓ If Used For) Purging	Sampling		Equipment ID
X	X	Peristaltic Pump	
—	—	Submersible Pump	
—	—	Bailer	
—	—	PVC/Silicon Tubing	
X	X	Teflon/Silicon Tubing	
—	—	Airlift	
—	—	Hand Pump	
—	—	In-line Filter	
—	—	Press/Vac Filter	
—	—		

Decontamination Fluids Used :

(✓ All That Apply at Location)
___ Methanol (100%)
___ 25% Methanol/75% ASTM Type II water
___ Deionized Water
___ Liquinox Solution
___ Hexane
___ HNO_3/0.1 Water Solution
___ Potable Water
X None

Field Analysis Data

Ambient Air VOC NR ppm Well Mouth NR ppm Field Data Collected ___ In-line / X In Container

Sample Observations: ___ Turbid / X Clear / ___ Cloudy / ___ Colored / ___ Odor

Purge Data @ 1.5 Gal.	@ 2.2 Gal.	@ 2.5 Gal.	@ 3.0 Gal.	@ 3.2 Gal.
Temperature, Deg. C 29	29	30.2	29.6	29.5
pH, units 6.38	5.81	6.51	6.53	6.66
Specific Conductivity 100	120	130	117	115
(umhos/cm @ 25 Deg. C) DTU 42.0	14.6	57.6	4.3	6.4
~~Oxidation Reduction, +/- mv~~				
~~Dissolved Oxygen, ppm~~				

Sample Collection Requirements

(✓ If Required at this Location)

Analytical Parameter	✓ If Field Filtered	Preservation Method	Volume Required	✓ If Sample Collected	Sample Bottle IDs
VOA	___	HCL	___	___	___ / ___ / ___ / ___
SVOA	___	4C	___	___	___ / ___ / ___ / ___
Pest/PCB	___	4C	___	___	___ / ___ / ___ / ___
Inorganics	___	HNO_3	___	___	___ / ___ / ___ / ___
Explosives	___	4°C	___	___	___ / ___ / ___ / ___
TPH	___	H_2SO_4	___	___	___ / ___ / ___ / ___
TOC	___	H_2SO_4	___	___	___ / ___ / ___ / ___
Nitrate	___	H_2SO_4	___	___	___ / ___ / ___ / ___

Notes: 55600101

3 x 40 ml w/HCL = 524.2 VOC
2 x 1l amber = 5 VOC
2 x 1l amber = Pest/PCB
1 x 1l Poly w/HNO_3 = TAL METALS

SURFACE SOIL SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO
Project Number: 02530.09
Sample Location ID: 55500101
Time: Start: 1432 End: 1440

Site: SA55
Date: 8-11/98
Signature of Sampler: W. Allen D. Olsen

SOIL SAMPLE

DEPTH OF SAMPLE 0 - 1'

EQUIPMENT USED FOR COLLECTION:
- [X] HAND AUGER
- [ ] S.S. SPLIT SPOON
- [ ] SHOVEL
- [ ] HAND SPOON
- [ ] ALUMINUM PANS
- [ ] SS BUCKET
- [ ] _____

TYPE OF SAMPLE COLLECTED:
- [X] DISCRETE
- [ ] COMPOSITE

SAMPLE OBSERVATIONS:
- [ ] ODOR _____
- [X] COLOR Brown
- [X] Coal or Asphalt lumps

DECONTAMINATION FLUIDS USED:
- ✓ ALL USED
- [ ] ETHYL ALCOHOL
- [ ] 25% METHANOL 75% ASTM TYPE II WATER
- [ ] DEIONIZED WATER
- [ ] LIQUINOX SOLUTION
- [ ] HEXANE
- [ ] HNO_3 SOLUTION
- [ ] POTABLE WATER
- [ ] NONE

SOIL TYPE:
- [ ] CLAY
- [X] SAND
- [ ] ORGANIC
- [ ] GRAVEL

FIELD QA/QC DATA: [X] FIELD DUPLICATE COLLECTED
DUPLICATE ID 55500101D

SAMPLE LOCATION SKETCH:
- [X] YES
- [ ] NO

SAMPLES COLLECTED

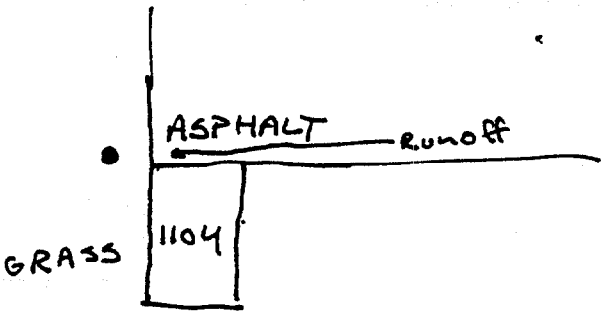
✓ IF REQUIRED AT THIS LOCATION	MATRIX: SURFACE WATER	MATRIX: SEDIMENT	✓ IF PRESERVED WITH ACID-BASE	VOLUME REQUIRED	✓ IF SAMPLE COLLECTED	SAMPLE BOTTLE IDS
[ ]	[ ]	[ ]	[ ]		[ ]	/ /
[ ]	[ ]	[ ]	[ ]		[ ]	/ /
[ ]	[ ]	[ ]	[ ]		[ ]	/ /
[ ]	[ ]	[ ]	[ ]		[ ]	/ /
[ ]	[ ]	[ ]	[ ]		[ ]	/ /
[ ]	[ ]	[ ]	[ ]		[ ]	/ /
[ ]	[ ]	[ ]	[ ]		[ ]	/ /

NOTES/SKETCH

PCB 1A results

55500101 ≤ 1 ppm
*55500101D ≤ 4 ppm

* Ran from same extraction



SURFACE SOIL SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO
Project Number: 02530.09
Sample Location ID: 55500201
Time: Start: 1440 End: 1444

Site: SA55
Date: 8-11/98
Signature of Sampler: William D. Olson

SOIL SAMPLE

DEPTH OF SAMPLE 0-1'

EQUIPMENT USED FOR COLLECTION:
[X] HAND AUGER
[ ] S.S. SPLIT SPOON
[ ] SHOVEL
[ ] HAND SPOON
[ ] ALUMINUM PANS
[ ] SS BUCKET
[ ] _____

TYPE OF SAMPLE COLLECTED:
[X] DISCRETE
[ ] COMPOSITE

SAMPLE OBSERVATIONS:
[ ] ODOR _____
[X] COLOR Brown
[ ] _____

DECONTAMINATION FLUIDS USED:
✓ ALL USED
[ ] ETHYL ALCOHOL
[ ] 25% METHANOL 75% ASTM TYPE II WATER
[ ] DEIONIZED WATER
[ ] LIQUINOX SOLUTION
[ ] HEXANE
[ ] HNO_3 SOLUTION
[ ] POTABLE WATER
[ ] NONE

SOIL TYPE:
[ ] CLAY
[X] SAND
[ ] ORGANIC
[ ] GRAVEL

FIELD QC DATA: [ ] FIELD DUPLICATE COLLECTED
DUPLICATE ID _____

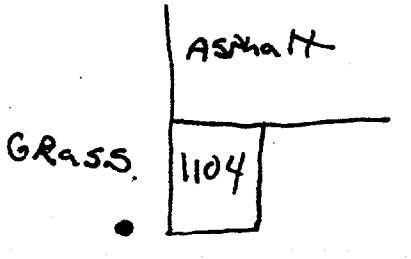
SAMPLE LOCATION SKETCH:
[X] YES
[ ] NO

SAMPLES COLLECTED

✓ IF REQUIRED AT THIS LOCATION	MATRIX: SURFACE WATER	MATRIX: SEDIMENT	✓ IF PRESERVED WITH ACID-BASE	VOLUME REQUIRED	✓ IF SAMPLE COLLECTED	SAMPLE BOTTLE IDS
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	

NOTES/SKETCH

PCB IA RESULTS
55500201 ≤ 1 ppm PCB



SURFACE SOIL SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO
Project Number: 02530.09
Sample Location ID: 55500301
Time: Start: 1444 End: 1450

Site: SA55
Date: 8 - 11/98
Signature of Sampler: Walter D. Ebersole

SOIL SAMPLE

DEPTH OF SAMPLE 0 - 1

EQUIPMENT USED FOR COLLECTION:
- [X] HAND AUGER
- [ ] S.S. SPLIT SPOON
- [ ] SHOVEL
- [ ] HAND SPOON
- [ ] ALUMINUM PANS
- [ ] SS BUCKET
- [ ] _____

TYPE OF SAMPLE COLLECTED:
- [X] DISCRETE
- [ ] COMPOSITE

SAMPLE OBSERVATIONS:
- [ ] ODOR _____
- [X] COLOR brown
- [ ] _____

DECONTAMINATION FLUIDS USED:
- ✓ ALL USED
- [ ] ETHYL ALCOHOL
- [ ] 25% METHANOL 75% ASTM TYPE II WATER
- [ ] DEIONIZED WATER
- [ ] LIQUINOX SOLUTION
- [ ] HEXANE
- [ ] HNO_3 SOLUTION
- [ ] POTABLE WATER
- [ ] NONE

SOIL TYPE:
- [ ] CLAY
- [X] SAND
- [ ] ORGANIC
- [ ] GRAVEL

FIELD QC DATA: [ ] FIELD DUPLICATE COLLECTED
DUPLICATE ID _____

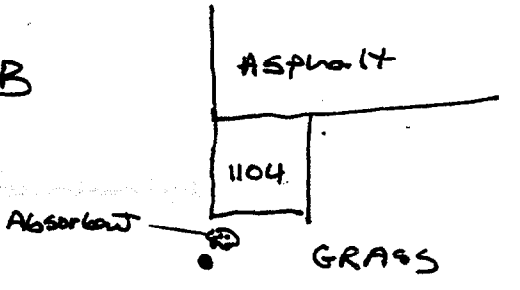
SAMPLE LOCATION SKETCH:
- [X] YES
- [ ] NO

SAMPLES COLLECTED

✓ IF REQUIRED AT THIS LOCATION	MATRIX: SURFACE WATER	MATRIX: SEDIMENT	✓ IF PRESERVED WITH ACID-BASE	VOLUME REQUIRED	✓ IF SAMPLE COLLECTED	SAMPLE BOTTLE IDS
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	

NOTES/SKETCH

PCB IA RESULTS
55500301 ≤ 1ppm PCB



SURFACE SOIL SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO
Project Number: 02530.09
Sample Location ID: 55500401
Time: Start: 1450 End: 1459

Site: SA55
Date: 8-11-98
Signature of Sampler: Matthew D. Olson

SOIL SAMPLE

DEPTH OF SAMPLE 0-1'

EQUIPMENT USED FOR COLLECTION:
[X] HAND AUGER
[ ] S.S. SPLIT SPOON
[ ] SHOVEL
[ ] HAND SPOON
[ ] ALUMINUM PANS
[ ] SS BUCKET
[ ] _____

TYPE OF SAMPLE COLLECTED:
[X] DISCRETE
[ ] COMPOSITE

SAMPLE OBSERVATIONS:
[ ] ODOR _____
[X] COLOR brown
[ ] _____

DECONTAMINATION FLUIDS USED:
✓ ALL USED
[ ] ETHYL ALCOHOL
[ ] 25% METHANOL 75% ASTM TYPE II WATER
[ ] DEIONIZED WATER
[ ] LIQUINOX SOLUTION
[ ] HEXANE
[ ] HNO_3 SOLUTION
[ ] POTABLE WATER
[ ] NONE

SOIL TYPE:
[ ] CLAY
[X] SAND
[ ] ORGANIC
[ ] GRAVEL

FIELD QC DATA: [ ] FIELD DUPLICATE COLLECTED
DUPLICATE ID _____

SAMPLE LOCATION SKETCH:
[X] YES
[ ] NO

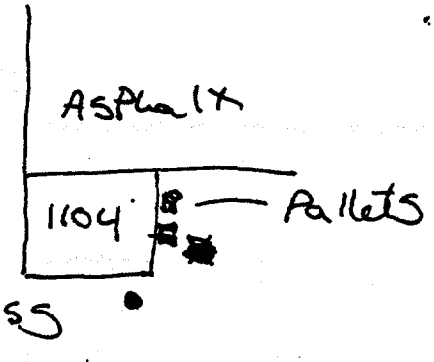
SAMPLES COLLECTED

✓ IF REQUIRED AT THIS LOCATION	MATRIX: SURFACE WATER	MATRIX: SEDIMENT	✓ IF PRESERVED WITH ACID-BASE	VOLUME REQUIRED	✓ IF SAMPLE COLLECTED	SAMPLE BOTTLE IDS
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	

NOTES/SKETCH

PCB IA RESULTS

55500401 ≤ 1ppm



SURFACE SOIL SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO
Project Number: 02530.09
Sample Location ID: 55500501
Time: Start: 1458 End: 1502

Site: SA55
Date: 8-11/98
Signature of Sampler: William D. Ober

SOIL SAMPLE

DEPTH OF SAMPLE 0-1'

EQUIPMENT USED FOR COLLECTION:
- [X] HAND AUGER
- [ ] S.S. SPLIT SPOON
- [ ] SHOVEL
- [ ] HAND SPOON
- [ ] ALUMINUM PANS
- [ ] SS BUCKET
- [ ] _____

TYPE OF SAMPLE COLLECTED:
- [X] DISCRETE
- [ ] COMPOSITE

SAMPLE OBSERVATIONS:
- [ ] ODOR _____
- [X] COLOR brown
- [ ] _____

DECONTAMINATION FLUIDS USED:
- ✓ ALL USED
- [ ] ETHYL ALCOHOL
- [ ] 25% METHANOL 75% ASTM TYPE II WATER
- [ ] DEIONIZED WATER
- [ ] LIQUINOX SOLUTION
- [ ] HEXANE
- [ ] HNO_3 SOLUTION
- [ ] POTABLE WATER
- [ ] NONE

SOIL TYPE:
- [ ] CLAY
- [X] SAND
- [ ] ORGANIC
- [ ] GRAVEL

FIELD QC DATA: [ ] FIELD DUPLICATE COLLECTED
DUPLICATE ID _____

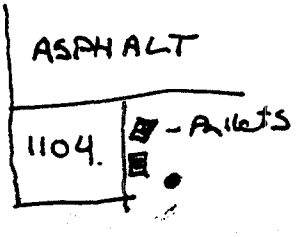
SAMPLE LOCATION SKETCH:
- [X] YES
- [ ] NO

SAMPLES COLLECTED

✓ IF REQUIRED AT THIS LOCATION	MATRIX: SURFACE WATER	MATRIX: SEDIMENT	✓ IF PRESERVED WITH ACID-BASE	VOLUME REQUIRED	✓ IF SAMPLE COLLECTED	SAMPLE BOTTLE ID#
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	

NOTES/SKETCH

PCB IA RESULTS
55500501 ≤ 1 ppm PCB



SURFACE SOIL SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO
Project Number: 02530.09
Sample Location ID: 5550060 1
Time: Start: 1502 End: 1508

Site: SA55
Date: 8-11/98
Signature of Sampler: W. Abbas D. Olsen

SOIL SAMPLE

DEPTH OF SAMPLE 0 - 1'

EQUIPMENT USED FOR COLLECTION:
- [X] HAND AUGER
- [ ] S.S. SPLIT SPOON
- [ ] SHOVEL
- [ ] HAND SPOON
- [ ] ALUMINUM PANS
- [ ] SS BUCKET
- [ ] _____

TYPE OF SAMPLE COLLECTED:
- [X] DISCRETE
- [ ] COMPOSITE

SAMPLE OBSERVATIONS:
- [ ] ODOR _____
- [X] COLOR Brown
- [ ] _____

DECONTAMINATION FLUIDS USED:
- ✓ ALL USED
- [ ] ETHYL ALCOHOL
- [ ] 25% METHANOL 75% ASTM TYPE II WATER
- [ ] DEIONIZED WATER
- [ ] LIQUINOX SOLUTION
- [ ] HEXANE
- [ ] HNO_3 SOLUTION
- [ ] POTABLE WATER
- [ ] NONE

SOIL TYPE:
- [ ] CLAY
- [X] SAND
- [ ] ORGANIC
- [ ] GRAVEL

FIELD QC DATA: [ ] FIELD DUPLICATE COLLECTED
DUPLICATE ID _____

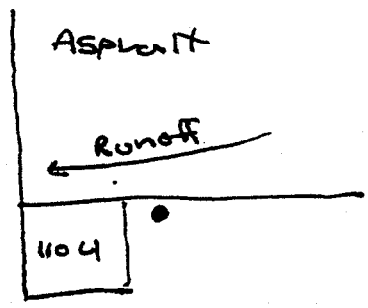
SAMPLE LOCATION SKETCH:
- [X] YES
- [ ] NO

SAMPLES COLLECTED

✓ IF REQUIRED AT THIS LOCATION	MATRIX: SURFACE WATER	MATRIX: SEDIMENT	✓ IF PRESERVED WITH ACID-BASE	VOLUME REQUIRED	✓ IF SAMPLE COLLECTED	SAMPLE BOTTLE IDS
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	

NOTES/SKETCH

PCB IA RESOLTS
5550060 1 ≤ PCB 1ppm



SURFACE SOIL SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO
Project Number: 02530.05
Sample Location ID: SS500107
Time: Start: 1108 End: 1123

Site: SA 55
Date: 8-12-98
Signature of Sampler: [signature]

SOIL SAMPLE

DEPTH OF SAMPLE 0-1

EQUIPMENT USED FOR COLLECTION:
- [X] HAND AUGER
- [ ] S.S. SPLIT SPOON
- [ ] SHOVEL
- [ ] HAND SPOON
- [ ] ALUMINUM PANS
- [ ] SS BUCKET
- [X] encore

TYPE OF SAMPLE COLLECTED:
- [X] DISCRETE
- [ ] COMPOSITE

SAMPLE OBSERVATIONS:
- [ ] ODOR
- [X] COLOR brown
- [X] Lumps of coal or asphalt

DECONTAMINATION FLUIDS USED:
- ✓ ALL USED
- [ ] ETHYL ALCOHOL
- [ ] 25% METHANOL 75% ASTM TYPE II WATER
- [ ] DEIONIZED WATER
- [ ] LIQUINOX SOLUTION
- [ ] HEXANE
- [ ] HNO_3 SOLUTION
- [ ] POTABLE WATER
- [ ] NONE

SOIL TYPE:
- [ ] CLAY
- [X] SAND
- [ ] ORGANIC
- [ ] GRAVEL

FIELD QC DATA: [ ] FIELD DUPLICATE COLLECTED
DUPLICATE ID _____

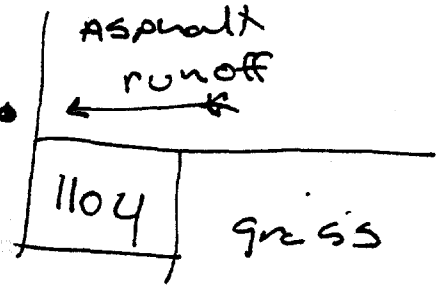
SAMPLE LOCATION SKETCH:
- [X] YES
- [ ] NO

SAMPLES COLLECTED

✓ IF REQUIRED AT THIS LOCATION	MATRIX: SURFACE WATER	MATRIX: SEDIMENT	✓ IF PRESERVED WITH ACID-BASE	VOLUME REQUIRED	✓ IF SAMPLE COLLECTED	SAMPLE BOTTLE IDS
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	

NOTES/SKETCH

3X Encore = VOC 8260 + 5035 ext.
1X 2oz = moisture content
1X 4oz = SVOC/Pest/PCB/TAL metals



SURFACE SOIL SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO
Project Number: 02530.05
Sample Location ID: 55500302
Time: Start: 1123 End: 1145

Site: SA 55
Date: 8-12/98
Signature of Sampler: William D. Olsen

SOIL SAMPLE

DEPTH OF SAMPLE 0 - 1

EQUIPMENT USED FOR COLLECTION:
[X] HAND AUGER
[ ] S.S. SPLIT SPOON
[ ] SHOVEL
[ ] HAND SPOON
[ ] ALUMINUM PANS
[ ] SS BUCKET
[ ] _____

TYPE OF SAMPLE COLLECTED:
[X] DISCRETE
[ ] COMPOSITE

SAMPLE OBSERVATIONS:
[ ] ODOR _____
[X] COLOR BROWN
[ ] _____

DECONTAMINATION FLUIDS USED:
[✓] ALL USED
[ ] ETHYL ALCOHOL
[ ] 25% METHANOL 75% ASTM TYPE II WATER
[ ] DEIONIZED WATER
[ ] LIQUINOX SOLUTION
[ ] HEXANE
[ ] HNO_3 SOLUTION
[ ] POTABLE WATER
[ ] NONE

SOIL TYPE:
[ ] CLAY
[X] SAND
[ ] ORGANIC
[ ] GRAVEL

FIELD QC DATA: [ ] FIELD DUPLICATE COLLECTED
DUPLICATE ID _____

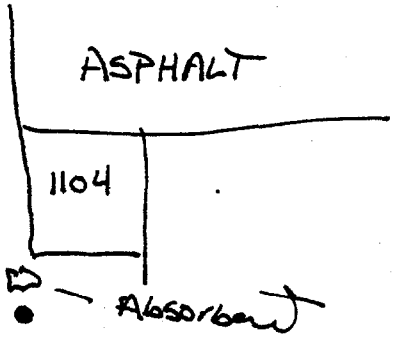
SAMPLE LOCATION SKETCH:
[X] YES
[ ] NO

SAMPLES COLLECTED

✓ IF REQUIRED AT THIS LOCATION	MATRIX: SURFACE WATER	MATRIX: SEDIMENT	✓ IF PRESERVED WITH ACID-BASE	VOLUME REQUIRED	✓ IF SAMPLE COLLECTED	SAMPLE BOTTLE IDS
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	

NOTES/SKETCH

3X Encore = VOC 8260 + 5035ext.
1X 2oz = moisture content
1X 4oz = SVOC/PEST/PCB/TAL Metals



SURFACE SOIL SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO
Project Number: 02530.05
Sample Location ID: 55500602
Time: Start: 1145 End: 1205

Site: SA55
Date: 8-12-98
Signature of Sampler: Willia D. Olson

SOIL SAMPLE

DEPTH OF SAMPLE 0 - 1'

EQUIPMENT USED FOR COLLECTION:
- [X] HAND AUGER
- [ ] S.S. SPLIT SPOON
- [ ] SHOVEL
- [ ] HAND SPOON
- [ ] ALUMINUM PANS
- [ ] SS BUCKET
- [ ] _____

TYPE OF SAMPLE COLLECTED:
- [X] DISCRETE
- [ ] COMPOSITE

SAMPLE OBSERVATIONS:
- [ ] ODOR _____
- [X] COLOR Brown
- [ ] _____

DECONTAMINATION FLUIDS USED:
- [✓] ALL USED
- [ ] ETHYL ALCOHOL
- [ ] 25% METHANOL 75% ASTM TYPE II WATER
- [ ] DEIONIZED WATER
- [ ] LIQUINOX SOLUTION
- [ ] HEXANE
- [ ] HNO_3 SOLUTION
- [ ] POTABLE WATER
- [ ] NONE

SOIL TYPE:
- [ ] CLAY
- [X] SAND
- [ ] ORGANIC
- [ ] GRAVEL

FIELD QC DATA: [ ] FIELD DUPLICATE COLLECTED
DUPLICATE ID _____

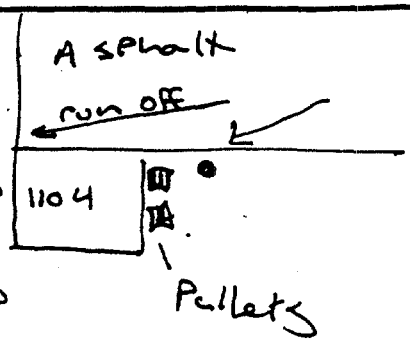
SAMPLE LOCATION SKETCH:
- [X] YES
- [ ] NO

SAMPLES COLLECTED

✓ IF REQUIRED AT THIS LOCATION	MATRIX: SURFACE WATER	MATRIX: SEDIMENT	✓ IF PRESERVED WITH ACID-BASE	VOLUME REQUIRED	✓ IF SAMPLE COLLECTED	SAMPLE BOTTLE IDS
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	
[ ]	[ ]	[ ]	[ ]		[ ]	

NOTES/SKETCH

3 x Encore = VOC 8260 + 5035 ext.
1 x 2oz. = moisture content
1 x 4oz = SVOC/PEST/PCB + TAL metals



APPENDIX C

SUMMARY OF DETECTIONS TABLES

TABLE C-1

SUMMARY OF SURFACE SOIL IMMUNOASSAY ANALYTICAL RESULTS

Appendix C

Table C-1. Summary of Surface Soil Immunoassay Analytical Results
Study Area 55

Naval Training Center, Orlando
Orlando, FL

Sample ID	55S00101	55S00101D	55S00201	55S00301	55S00401	55S00501	55S00601
Sampling Date	8/11/98	8/11/98	8/11/98	8/11/98	8/11/98	8/11/98	8/11/98
Polychlorinated Biphenyls (PCBs), ppm							
Total PCBs	1 U	4	1 U	1 U	1 U	1 U	1 U

NOTES:

55S00101D is a duplicate analysis of the extract obtained from 55S00101.
Sample ID = Sample Identifier
ppm = parts per million
U = The analyte/compound was analyzed for but was not detected above the method quantitation limit.
The number preceding the U qualifier is the method quantitation limit.

TABLE C-2

SUMMARY OF DETECTIONS IN SURFACE SOIL ANALYTICAL RESULTS

Appendix C
Table C-2. Summary of Detections in Surface Soil Analytical Results
Study Area 55

Naval Training Center, Orlando
Orlando, FL

Sample ID	Background	SCTL	RBC for Residential Soil		RBC for Industrial Soil		55S00102		55S00302		55S00602	
Sampling Date							8/12/98		8/12/98		8/12/98	
Semivolatile Organics, µg/kg												
Benzo(a)anthracene		1,400	880	c	7,800	c	100	J			61	J
Benzo(a)pyrene		100	88	c	780	c	240	J	88	J	130	J
Benzo(b)fluoranthene		1,400	880	c	7,800	c	440		160	J	230	J
Benzo(g,h,i)perylene		2,300,000	2,300,000	n	61,000,000	n	240	J	80	J	120	J
Benzo(k)fluoranthene		15,000	8,800	c	78,000	c	150	J	66	J	95	J
Chrysene		140,000	88,000	c	780,000	c	230	J	83	J	140	J
Fluoranthene		2,800,000	3,100,000	n	82,000,000	n	170	J	54	J	130	J
Indeno(1,2,3-cd)pyrene		1,500	880	c	7,800	c	190	J	70	J	100	J
Phenanthrene		1,900,000	2,300,000	n	61,000,000	n	57	J				
Pyrene		2,200,000	2,300,000	n	61,000,000	n	220	J	76	J	180	J
Pesticides, µg/kg												
4,4'-DDD		4,500	2,700	c	24,000	c					7	
4,4'-DDE		3,200	1,900	c	17,000	c	8.3					
4,4'-DDT		3,200	1,900	c	17,000	c	6.7					
Aldrin		60	38	c	340	c					1.8	
alpha-Chlordane		3,000	490	c	4,400	c					21	
Endosulfan I		410,000	ND		ND						4.4	J
gamma-Chlordane		3,000	490	c	4,400	c					16	
Heptachlor epoxide		100	140	c	1,300	c					5.6	
Inorganics, mg/kg												
Aluminum	2088	72,000	78,000	n	1,000,000	n	2,490		3,420		2,490	
Arsenic	1.0	0.8	0.43 /23	c/n	3.8 /610	c/	0.96	B	0.97	B	2.7	
Barium	8.7	105	5,500	n	140,000	n	5.3	B	4.5	B	3.9	B
Calcium	25295	ND	1,000,000		1,000,000		9,360		1,920		3,080	
Chromium	4.6	290	390	n	10,000	n	3.2		3.1		2.6	
Copper	4.1	105	3,100	n	82,000	n	2.7		1.6	B	1.0	B
Iron	712.5	23,000	23,000	n	610,000	n	1,200		1,410		1,270	
Lead	14.5	500	400		400		12.1		3.9		4.5	
Magnesium	327.9	ND	460,468		460,468		4,430		80.7	B	92.7	B
Manganese	8.1	1,600	1,800	n	47,000	n	14.5		11.6		10.0	
Nickel	4.4	1500	1,600	n	41,000	n			1.7	B		
Potassium	157.3	ND	1,000,000		1,000,000		15.7	B	22.6	B	15.5	B
Sodium	91.4	ND	1,000,000		1,000,000		42.6	B	38.7	B	34.8	B
Vanadium	3.1	15	550	n	14,000	n	3.5	B	3.1	B	2.7	B
Zinc	17.2	23,000	23,000	n	610,000	n	9.6		8.4		3.9	B

NOTES:

The background screening value is twice the average of detected concentrations for inorganic analytes.

SCTL = Florida Department of Environmental Protection, Soil Cleanup Target Levels, Chapter 62-785 FAC, April 30, 1998.
Values indicated are for direct exposure scenario. Value for chromium is for chromium (IV).
Value for mercury is for inorganic mercury.

RBC = Risk-Based Concentration Table, USEPA Region III, May 1996, R.L. Smith. RBC for chromium is based on chromium VI. RBC for lead is not available; value is Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER directive 9355-4-12). For essential nutrients (calcium, magnesium, sodium, potassium) screening values were derived based on recommended daily allowances.
RBC for benzo(g,h,i)perylene and phenanthrene are not available, value is based on pyrene.

µg/kg = micrograms per kilogram.
mg/kg = milligrams per kilogram.
n = noncarcinogenic effects.
DDE = dichlorodiphenyldichloroethene.
DDT = dichlorodiphenyltrichloroethane.
DDD = dichlorodiphenyldichloroethane.

Appendix C
Table C-2. Summary of Detections in Surface Soil Analytical Results
Study Area 55

Naval Training Center, Orlando
Orlando, FL

c = carcinogenic effects.
ND = Not determined.

B = Reported concentration is between the instrument detection limit and Contract Required Detection Limit.
J = Reported concentration is an estimated quantity.
FDEP = Florida Department of Environmental Protection.
OSWER = Office of Solid Waste and Emergency Response.
USEPA = U.S. Environmental Protection Agency.
All inorganics results expressed in milligrams per kilogram (mg/kg) soil dry weight; organics in micrograms per kilogram (µg/kg) soil dry weight.
Bold/shaded values indicate exceedance of regulatory guidance and background.
Blank space indicates analyte/compound was not detected at the reporting limit.

TABLE C-3

SUMMARY OF DETECTIONS IN GROUNDWATER ANALYTICAL RESULTS

Appendix C

Table C-3. Summary of Detections in Groundwater Analytical Results

Study Area 55

Naval Training Center, Orlando
Orlando, FL

Well ID							OLD-55-01									
Sample ID	Background		FDEPGCTL		FEDMCL		RBC for Tap Water		55G00101							
Sampling Date									8/12/98							
Inorganics, µg/L																
Aluminum	4,067		200	s	ND		37,000	n	270							
Barium	31.4		2,000	p/st	2,000		2,600	n	8.3	B						
Calcium	36,830		ND		ND		1,000,000		19000							
Magnesium	4,560		ND		ND		118,807		550	B						
Manganese	17		50	s/st	ND		180	n	19							
Potassium	5,400		ND		ND		297,016		400	B						
Sodium	18,222		160,000	p	ND		396,022		2200	B						

NOTES:

Groundwater background screening value is twice the average of detected concentrations for inorganic analytes.
FDEPGCTL = Florida Department of Environmental Protection, Groundwater Cleanup Target Levels, Chapter 62-785 FAC, April 30, 1998.
FEDMCL= Federal Maximum Contaminant Levels, Primary Drinking Water Regulations and Health Advisories, February 1996.
RBC = Risk-Based Concentration Table, USEPA Region III, May 1996, R.L. Smith.
For essential nutrients (calcium, magnesium, potassium, and sodium) screening values were derived based on recommended daily allowances.

s = secondary groundwater standard.
st = systemic toxicant.
p = primary standard.
n = noncarcinogenic effects.
USEPA = U.S. Environmental Protection Agency.
B = Reported concentration is between the instrument detection limit and the contract required detection limit.
ND = Not determined.
µg/L = micrograms per liter.
Blank space indicates analyte/compound was not detected at the reporting limit.

APPENDIX D

SUMMARY OF ANALYTICAL RESULTS TABLES

TABLE D-1

SUMMARY OF SOIL ANALYTICAL RESULTS

Appendix D
Table D-1. Summary of Soil Analytical Results
Study Area 55

Naval Training Center, Orlando
Orlando, FL

Sample ID	55S00102		55S00302		55S00602	
Lab ID	A8H140121005		A8H140121006		A8H140121007	
Sampling Date	8/12/98		8/12/98		8/12/98	
Volatile organics, µg/kg						
1,1,1-Trichloroethane	260	U	260	U	260	U
1,1,2,2-Tetrachloroethane	260	U	260	U	260	U
1,1,2-Trichloroethane	260	U	260	U	260	U
1,1-Dichloroethane	260	U	260	U	260	U
1,1-Dichloroethene	260	U	260	U	260	U
1,2-Dichloroethane	260	U	260	U	260	U
1,2-Dichloroethene (total)	260	U	260	U	260	U
1,2-Dichloropropane	260	U	260	U	260	U
2-Butanone	1000	U	1000	U	1100	U
2-Hexanone	1000	U	1000	U	1100	U
4-Methyl-2-pentanone	1000	U	1000	U	1100	U
Acetone	1000	U	1000	U	1100	U
Benzene	260	U	260	U	260	U
Bromodichloromethane	260	U	260	U	260	U
Bromoform	260	U	260	U	260	U
Bromomethane	520	U	520	U	530	U
Carbon disulfide	260	U	260	U	260	U
Carbon tetrachloride	260	U	260	U	260	U
Chlorobenzene	260	U	260	U	260	U
Chloroethane	520	U	520	U	530	U
Chloroform	260	U	260	U	260	U
Chloromethane	520	U	520	U	530	U
cis-1,3-Dichloropropene	260	U	260	U	260	U
Dibromochloromethane	260	U	260	U	260	U
Ethylbenzene	260	U	260	U	260	U
Methylene chloride	260	U	260	U	260	U
Styrene	260	U	260	U	260	U
Tetrachloroethene	260	U	260	U	260	U
Toluene	260	U	260	U	260	U
trans-1,3-Dichloropropene	260	U	260	U	260	U
Trichloroethene	260	U	260	U	260	U
Vinyl chloride	520	U	520	U	530	U
Xylene (total)	260	U	260	U	260	U
Semivolatile organics, µg/kg						
1,2,4-Trichlorobenzene	350	U	350	U	350	U
1,2-Dichlorobenzene	350	U	350	U	350	U
1,3-Dichlorobenzene	350	U	350	U	350	U
1,4-Dichlorobenzene	350	U	350	U	350	U
2,2'-oxybis(1-Chloropropane)	350	U	350	U	350	U
2,4,5-Trichlorophenol	350	U	350	U	350	U
2,4,6-Trichlorophenol	350	U	350	U	350	U
2,4-Dichlorophenol	350	U	350	U	350	U
2,4-Dimethylphenol	350	U	350	U	350	U
2,4-Dinitrophenol	1700	U	1700	U	1700	U
2,4-Dinitrotoluene	350	U	350	U	350	U
2,6-Dinitrotoluene	350	U	350	U	350	U
2-Chloronaphthalene	350	U	350	U	350	U
2-Chlorophenol	350	U	350	U	350	U
2-Methylnaphthalene	350	U	350	U	350	U
2-Methylphenol	350	U	350	U	350	U
2-Nitroaniline	1700	U	1700	U	1700	U

Appendix D
Table D-1. Summary of Soil Analytical Results
Study Area 55

Naval Training Center, Orlando
Orlando, FL

Sample ID	55S00102		55S00302		55S00602	
Lab ID	A8H140121005		A8H140121006		A8H140121007	
Sampling Date	8/12/98		8/12/98		8/12/98	
2-Nitrophenol	350	U	350	U	350	U
3,3'-Dichlorobenzidine	1700	U	1700	U	1700	U
3-Nitroaniline	1700	U	1700	U	1700	U
4,6-Dinitro-2-methylphenol	1700	U	1700	U	1700	U
4-Bromophenyl-phenylether	350	U	350	U	350	U
4-Chloro-3-methylphenol	350	U	350	U	350	U
4-Chloroaniline	350	U	350	U	350	U
4-Chlorophenyl-phenylether	350	U	350	U	350	U
4-Methylphenol	350	U	350	U	350	U
4-Nitroaniline	1700	U	1700	U	1700	U
4-Nitrophenol	1700	U	1700	U	1700	U
Acenaphthene	350	U	350	U	350	U
Acenaphthylene	350	U	350	U	350	U
Anthracene	350	U	350	U	350	U
Benzo(a)anthracene	100	J	350	U	61	J
Benzo(a)pyrene	240	J	88	J	130	J
Benzo(b)fluoranthene	440		160	J	230	J
Benzo(g,h,i)perylene	240	J	80	J	120	J
Benzo(k)fluoranthene	150	J	66	J	95	J
bis(2-Chloroethoxy)methane	350	U	350	U	350	U
bis(2-Chloroethyl)ether	350	U	350	U	350	U
bis(2-Ethylhexyl)phthalate	350	U	350	U	350	U
Butylbenzylphthalate	350	U	350	U	350	U
Carbazole	350	U	350	U	350	U
Chrysene	230	J	83	J	140	J
Di-n-butylphthalate	350	U	350	U	350	U
Di-n-octylphthalate	350	U	350	U	350	U
Dibenz(a,h)anthracene	350	U	350	U	350	U
Dibenzofuran	350	U	350	U	350	U
Diethylphthalate	350	U	350	U	350	U
Dimethylphthalate	350	U	350	U	350	U
Fluoranthene	170	J	54	J	130	J
Fluorene	350	U	350	U	350	U
Hexachlorobenzene	350	U	350	U	350	U
Hexachlorobutadiene	350	U	350	U	350	U
Hexachlorocyclopentadiene	1700	U	1700	U	1700	U
Hexachloroethane	350	U	350	U	350	U
Indeno(1,2,3-cd)pyrene	190	J	70	J	100	J
Isophorone	350	U	350	U	350	U
N-Nitroso-di-n-propylamine	350	U	350	U	350	U
N-Nitrosodiphenylamine (1)	350	U	350	U	350	U
Naphthalene	350	U	350	U	350	U
Nitrobenzene	350	U	350	U	350	U
Pentachlorophenol	1700	U	1700	U	1700	U
Phenanthrene	57	J	350	U	350	U
Phenol	350	U	350	U	350	U
Pyrene	220	J	76	J	180	J
Pesticides/PCBs, µg/kg						
4,4'-DDD	3.5	U	3.5	U	7	
4,4'-DDE	8.3		3.5	U	3.5	U
4,4'-DDT	6.7		3.5	U	3.5	U
Aldrin	1.8	U	1.8	U	1.8	

Appendix D
Table D-1. Summary of Soil Analytical Results
Study Area 55

Naval Training Center, Orlando
Orlando, FL

Sample ID	55S00102		55S00302		55S00602	
Lab ID	A8H140121005		A8H140121006		A8H140121007	
Sampling Date	8/12/98		8/12/98		8/12/98	
alpha-BHC	1.8	U	1.8	U	1.8	U
alpha-Chlordane	1.8	U	1.8	U	21	
Aroclor-1016	35	U	35	U	35	U
Aroclor-1221	35	U	35	U	35	U
Aroclor-1232	35	U	35	U	35	U
Aroclor-1242	35	U	35	U	35	U
Aroclor-1248	35	U	35	U	35	U
Aroclor-1254	35	U	35	U	35	U
Aroclor-1260	35	U	35	U	35	U
beta-BHC	1.8	U	1.8	U	1.8	U
delta-BHC	1.8	U	1.8	U	1.8	U
Dieldrin	3.5	U	3.5	U	3.5	U
Endosulfan I	1.8	U	1.8	U	4.4	PF
Endosulfan II	3.5	U	3.5	U	3.5	U
Endosulfan sulfate	3.5	U	3.5	U	3.5	U
Endrin	3.5	U	3.5	U	3.5	U
Endrin aldehyde	3.5	U	3.5	U	3.5	U
Endrin ketone	3.5	U	3.5	U	3.5	U
gamma-BHC (Lindane)	1.8	U	1.8	U	1.8	U
gamma-Chlordane	1.8	U	1.8	U	16	
Heptachlor	1.8	U	1.8	U	1.8	U
Heptachlor epoxide	1.8	U	1.8	U	5.6	
Methoxychlor	18	U	18	U	18	U
Toxaphene	87	U	87	U	87	U

TABLE D-2

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Appendix D
Table D-2. Summary of Groundwater Analytical Results
Study Area 55

Naval Training Center, Orlando
Orlando, FL

Sample ID	55G00101	
Lab ID	A8H140121008	
Sampling Date	8/12/98	
Volatile organics, µg/L		
1,1,1,2-Tetrachloroethane	0.5	U
1,1,1-Trichloroethane	0.5	U
1,1,2,2-Tetrachloroethane	0.5	U
1,1,2-Trichloroethane	0.5	U
1,1-Dichloroethane	0.5	U
1,1-Dichloroethene	0.5	U
1,1-Dichloropropene	0.5	U
1,2,3-Trichlorobenzene	0.5	U
1,2,3-Trichloropropane	0.5	U
1,2,4-Trichlorobenzene	0.5	U
1,2,4-Trimethylbenzene	0.5	U
1,2-Dibromo-3-chloropropane	0.6	U
1,2-Dibromoethane	0.5	U
1,2-Dichloroethane	0.5	U
1,2-Dichlorobenzene	0.5	U
1,3-Dichlorobenzene	0.5	U
1,4-Dichlorobenzene	0.5	U
1,2-Dichloropropane	0.5	U
1,3,5-Trimethylbenzene	0.5	U
1,3-Dichloropropane	0.5	U
2,2-Dichloropropane	0.5	U
2-Chlorotoluene	0.5	U
4-Chlorotoluene	0.5	U
4-Isopropyltoluene	0.5	U
Benzene	0.5	U
Bromobenzene	0.5	U
Bromochloromethane	0.5	U
Bromodichloromethane	0.5	U
Bromoform	0.5	U
Bromomethane	0.5	U
Carbon tetrachloride	0.5	U
Chlorobenzene	0.5	U
Chloroethane	0.5	U
Chloroform	0.5	U
Chloromethane	0.5	U
cis-1,2-Dichloroethene	0.5	U
cis-1,3-Dichloropropene	0.5	U
Dibromochloromethane	0.5	U
Dibromomethane	0.5	U
Dichlorodifluoromethane (CFC 12)	0.5	U
Ethylbenzene	0.5	U
Hexachlorobutadiene	0.5	U
Isopropylbenzene	0.5	U
Methylene chloride	0.5	U
Naphthalene	0.5	U
n-Butylbenzene	0.5	U
n-Propylbenzene	0.5	U
sec-Butylbenzene	0.5	U
Styrene	0.5	U
tert-Butylbenzene	0.5	U

Appendix D
Table D-2. Summary of Groundwater Analytical Results
Study Area 55

Naval Training Center, Orlando
Orlando, FL

Sample ID	55G00101	
Lab ID	A8H140121008	
Sampling Date	8/12/98	
Tetrachloroethene	0.5	U
Toluene	0.5	U
trans-1,2-Dichloroethene	0.5	U
trans-1,3-Dichloropropene	0.5	U
Trichloroethene	0.5	U
Trichlorofluoromethane (CFC 11)	0.5	U
Vinyl chloride	0.5	U
Semivolatile organics, µg/L		
2,2'-oxybis(1-Chloropropane)	10	U
2,4,5-Trichlorophenol	10	U
2,4,6-Trichlorophenol	10	U
2,4-Dichlorophenol	10	U
2,4-Dimethylphenol	10	U
2,4-Dinitrophenol	50	U
2,4-Dinitrotoluene	10	U
2,6-Dinitrotoluene	10	U
2-Chloronaphthalene	10	U
2-Chlorophenol	10	U
2-Methylnaphthalene	10	U
2-Methylphenol	10	U
2-Nitroaniline	50	U
2-Nitrophenol	10	U
3,3'-Dichlorobenzidine	50	U
3-Nitroaniline	50	U
4,6-Dinitro-2-methylphenol	50	U
4-Bromophenyl-phenylether	10	U
4-Chloro-3-methylphenol	10	U
4-Chloroaniline	10	U
4-Chlorophenyl-phenylether	10	U
4-Methylphenol	10	U
4-Nitroaniline	50	U
4-Nitrophenol	50	U
Acenaphthene	10	U
Acenaphthylene	10	U
Anthracene	10	U
Benzo(a)anthracene	10	U
Benzo(a)pyrene	10	U
Benzo(b)fluoranthene	10	U
Benzo(g,h,i)perylene	10	U
Benzo(k)fluoranthene	10	U
bis(2-Chloroethoxy)methane	10	U
bis(2-Chloroethyl)ether	10	U
bis(2-Ethylhexyl)phthalate	10	U
Butylbenzylphthalate	10	U
Carbazole	10	U
Chrysene	10	U
Di-n-butylphthalate	10	U
Di-n-octylphthalate	10	U
Dibenz(a,h)anthracene	10	U
Dibenzofuran	10	U
Diethylphthalate	10	U

Appendix D
Table D-2. Summary of Groundwater Analytical Results
Study Area 55

Naval Training Center, Orlando
Orlando, FL

Sample ID	55G00101	
Lab ID	A8H140121008	
Sampling Date	8/12/98	
Dimethylphthalate	10	U
Fluoranthene	10	U
Fluorene	10	U
Hexachlorobenzene	10	U
Hexachlorocyclopentadiene	50	U
Hexachloroethane	10	U
Indeno(1,2,3-cd)pyrene	10	U
Isophorone	10	U
N-Nitroso-di-n-propylamine	10	U
N-Nitrosodiphenylamine (1)	10	U
Nitrobenzene	10	U
Pentachlorophenol	50	U
Phenanthrene	10	U
Phenol	10	U
Pyrene	10	U
Pesticides/PCBs, µg/L		
4,4'-DDD	0.05	U
4,4'-DDE	0.05	U
4,4'-DDT	0.05	U
Aldrin	0.025	U
alpha-BHC	0.025	U
alpha-Chlordane	0.025	U
Aroclor-1016	0.5	U
Aroclor-1221	0.5	U
Aroclor-1232	0.5	U
Aroclor-1242	0.5	U
Aroclor-1248	0.5	U
Aroclor-1254	0.5	U
Aroclor-1260	0.5	U
beta-BHC	0.025	U
delta-BHC	0.025	U
Dieldrin	0.05	U
Endosulfan I	0.025	U
Endosulfan II	0.05	U
Endosulfan sulfate	0.05	U
Endrin	0.05	U
Endrin aldehyde	0.05	U
Endrin ketone	0.05	U
gamma-BHC (Lindane)	0.025	U
gamma-Chlordane	0.025	U
Heptachlor	0.025	U
Heptachlor epoxide	0.025	U
Methoxychlor	0.25	U
Toxaphene	1.2	U
Inorganics, µg/L		
Aluminum	270	
Antimony	60	U
Arsenic	10	U
Barium	8.3	B
Beryllium	5	U
Cadmium	5	U

Appendix D
Table D-2. Summary of Groundwater Analytical Results
Study Area 55

Naval Training Center, Orlando
Orlando, FL

Sample ID	55G00101	
Lab ID	A8H140121008	
Sampling Date	8/12/98	
Calcium	19000	
Chromium	10	U
Cobalt	50	U
Copper	25	U
Iron	100	U
Lead	3	U
Magnesium	550	B
Manganese	19	
Mercury	0.2	U
Nickel	40	U
Potassium	400	B
Selenium	5	U
Silver	10	U
Sodium	2200	B
Thallium	10	U
Vanadium	50	U
Zinc	50	U

TABLE D-3

SUMMARY OF WIPE SAMPLES ANALYTICAL RESULTS

Appendix D
Table D-3. Summary of Wipe Samples Analytical Results
Study Area 55

Naval Training Center, Orlando
Orlando, FL

Sample ID	55Z00101		55Z00201		55Z00301	
Lab ID	A8H140121001		A8H140121002		A8H140121003	
Sampling Date	8/12/98		8/12/98		8/12/98	
Polychlorinated Biphenyls, µg						
Aroclor-1016	4	U	4	U	4	U
Aroclor-1221	4	U	4	U	4	U
Aroclor-1232	4	U	4	U	4	U
Aroclor-1242	4	U	4	U	4	U
Aroclor-1248	4	U	4	U	4	U
Aroclor-1254	4	U	4	U	4	U
Aroclor-1260	4	U	4	U	4	U

Appendix D.
Notes for Summary of Analytical Results Tables
Study Area 55

Naval Training Center, Orlando
Orlando Florida

NA = Identified parameter not analyzed.
Sample ID = Sample Identifier
Lab ID = Laboratory identifier

Units:

mg/kg	milligram per kilogram
ug/kg	microgram per kilogram
ug/L	microgram per liter
ug	*microgram*

The following standard analytical data qualifiers have the following definitions:

U	The analyte/compound was analyzed for but was not detected above the reported sample quantitation limit The number preceding the U qualifier is the reported sample quantitation limit.
J	The analyte/compound was positively identified and the associated numerical value is an estimated concentration of the analyte/compound in the sample.
B	Reported concentration is between the instrument detection limit (IDL) and the contract required detection limit (CRDL).